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CLAIMS

1. A method for preparing a hair dermal papilla cell preparation comprising: providing a cell suspension by removing epidermal tissue from skin tissue and  
5 subjecting the resulting dermal tissue fraction to collagenase treatment, and cryopreserving the cell suspension to kill the follicular epidermal cells.

2. A method according to claim 1, wherein the cryopreservation is carried out after adjusting the cell  
10 density of the cell suspension to  $1 \times 10^5$  to  $1 \times 10^8$ /ml.

3. A method according to claim 1 or 2, wherein the cryopreservation is carried out at a temperature of  $-80^\circ\text{C}$  or lower.

4. A method according to any of claims 1 to 3,  
15 wherein the cryopreservation is carried out in liquid nitrogen.

5. A method according to any of claims 1 to 4, wherein the cryopreservation is carried out for a period of 1 week or more.

20 6. A method according to any of claims 1 to 5, wherein the skin tissue is from a mouse.

7. A method according to any of claims 1 to 5, wherein the skin tissue is from a rat.

25 8. A method according to any of claims 1 to 5, wherein the skin tissue is from a human.

9. A composition for regenerating hair follicles comprising hair dermal papilla cell and epidermal cells; wherein, the ratio of the number of hair dermal papilla cell to the number of epidermal cells is from 1:10 to  
30 10:1.

10. A composition according to claim 9, wherein the ratio of the number of hair dermal papilla cell to the number of epidermal cells is about 1:1.

11. A composition for regenerating hair follicles  
35 comprising a hair dermal papilla cell preparation and epidermal cells; wherein said preparation is prepared by providing a cell suspension by removing epidermal tissue

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from skin tissue and subjecting the resulting dermal tissue fraction to collagenase treatment, and cryopreserving the cell suspension to kill the follicular epidermal cells, in which the ratio of the number of hair dermal papilla cell to the number of epidermal cells is from 1:10 to 10:1.

12. A composition according to claim 11, wherein the ratio of the number of the hair dermal papilla cell to the number of the epidermal cells is about 1:1.

13. A composition according to claim 11 or 12, wherein the cryopreservation is carried out after adjusting the cell density of the cell suspension to  $1 \times 10^5$  to  $1 \times 10^6$ /ml.

14. A composition according to any of claims 11 to 13, wherein the cryopreservation is carried out at a temperature of  $-80^{\circ}\text{C}$  or lower.

15. A composition according to any of claims 11 to 14, wherein the cryopreservation is carried out in liquid nitrogen.

16. A composition according to any of claims 11 to 15, wherein the cryopreservation is carried out for a period of 1 week or more.

17. A composition according to any of claims 9 to 16, wherein the hair dermal papilla cell and the epidermal cells both originate in mice, both originate in rats or both originate in humans.

18. A composition according to any of claims 9 to 16, wherein the hair dermal papilla cell and the epidermal cells are cells derived from different species, each originating in mice, rats or humans.

19. A composition according to any of claims 9 to 18, wherein the epidermal cells originate in human foreskin.

20. A method for regenerating hair follicles by transplanting a composition according to any of claims 9 to 19 to a human.

21. A method for regenerating hair follicles by

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transplanting a composition according to any of claims 9 to 19 to a recipient animal.

22. A method according to claim 21, wherein the recipient animal is an immunosuppressed animal.

5        23. A method according to claim 21 or 22, wherein the recipient animal is an immunosuppressed animal selected from the group consisting of a nude mouse, SCID mouse and nude rat.

10       24. A method according to any of claims 20 to 23, wherein the composition is transplanted such that the amount of transplanted hair dermal papilla cell is  $1.0 \times 10^6$  to  $1 \times 10^8/\text{cm}^2$ .

15       25. A method according to any of claims 20 to 23, wherein the composition is transplanted such that the amount of transplanted hair dermal papilla cell is  $1.0 \times 10^7$  to  $1.5 \times 10^7/\text{cm}^2$ .

26. A method for regenerating hair follicles by producing a three-dimensional skin equivalent containing a composition according to any of claims 9 to 19.

20       27. A method according to claim 26, wherein hair dermal papilla cell are contained in the three-dimensional skin equivalent in an amount of  $1.0 \times 10^6$  to  $1 \times 10^8/\text{cm}^2$ .

25       28. A method according to claim 26, wherein the hair dermal papilla cell are contained in the three-dimensional skin equivalent in an amount of  $1.0 \times 10^7$  to  $1.5 \times 10^7/\text{cm}^2$ .

30       29. A chimeric animal having reorganized hair follicles by transplanting a composition according to any of claims 9 to 19 into a recipient animal.

30. A chimeric animal according to claim 29, wherein the recipient animal is an immunosuppressed animal.

35       31. A chimeric animal according to claim 29 or 30, wherein the recipient animal is an immunosuppressed animal selected from the group consisting of a nude mouse, SCID mouse or nude rat.

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32. A chimeric animal according to any of claims 29 to 31, wherein the composition is transplanted such that the amount of transplanted hair dermal papilla cell is  $1.0 \times 10^6$  to  $1 \times 10^8/\text{cm}^2$ .

5        33. A chimeric animal according to any of claims 29 to 31, wherein the composition is transplanted such that the amount of transplanted hair dermal papilla cell is  $1.0 \times 10^7$  to  $1.5 \times 10^7/\text{cm}^2$ .

10       34. A three-dimensional skin equivalent having reorganized hair follicles by producing a three-dimensional skin equivalent containing a composition according to any of claims 9 to 19.

15       35. A three-dimensional skin equivalent according to claim 34, wherein hair dermal papilla cell are contained in an amount of  $1.0 \times 10^6$  to  $1 \times 10^8/\text{cm}^2$ .

36. A three-dimensional skin equivalent according to claim 34, wherein hair dermal papilla cell are contained in an amount of  $1.0 \times 10^7$  to  $1.5 \times 10^7/\text{cm}^2$ .